

ABSTRACT OF THE DISCLOSURE

A Single Instruction Multiple Data (SIMD) digital signal processor includes an on-chip program memory for storing an instruction data of a program, a plurality of main instruction decoders for outputting a decoding signal by decoding the instruction data, an on-chip data memory for storing data and a plurality of arithmetic units for calculating the data according to the decoding signal and an arithmetic method for the same includes the steps of decoding an instruction data patched from an on-chip program memory in the main instruction decoder and calculating according to the characteristic of the instruction data after determining the characteristic of the decoded instruction data, thus to reduce calculation time in case of a digital signal processing algorithm having a small size of a data block to be processed and many conditional branches.